THE BRAIN IN BUSINESS:

THE CASE FOR ORGANISATIONAL COGNITIVE NEUROSCIENCE ?

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The application of cognitive neuroscientific techniques to understanding social behaviour has resulted in many discoveries. Yet advocates of the 'social cognitive neuroscience' approach maintain that it suffers from a number of limitations. The most notable of these is its distance from any form of real-world applicabity. One solution to this limitation is 'Organisational Cognitive Neuroscience' – the study of the cognitive neuroscience of human behaviour in, and in response to, organizations. Given that all of us will spend most of our lives in some sort of work related organisation, *organisational cognitive neuroscience* allows us to examine the cognitive underpinnings of social behaviour that occurs in what may be our most natural ecology. Here we provide a brief overview of this approach, a definition and also some possible questions that the new approach would be best suited to address.

Much of the recent controversy and attention around the application of the 'brain sciences' to business situations has focused on technologies such as magnetic resonance imaging

scanners, as well as the ethical implications of being able to 'look inside' the heads of individuals, and perhaps manipulate their responses. Such fanciful ideas have rightly been given short shrift by leading neuroscientists (Gazzaniga, 2005). Yet the heart of the intersection between neuroscience and business – which we term *organizational cognitive neuroscience* – lies not in the use of a single method, but in a way of thinking about business problems (Butler & Senior, 2007).

To take a single possible example from many, advertising executives have for years relied upon intuition, experience, or self-reported data from consumers to try to predict whether advertising will be effective (McDaniel & Gates, 2007). However, basing predictions on what neuroscientists already know about how humans process information, or respond to various stimuli (threats, sexual appeals, etc.) can lead to more confidence in one's decisions. More specific research in this area not only serves to enhance our predictions, but will also have a knock-on effect of increasing our knowledge of human psychology (Morse, 2006). What it will *not* do is allow advertisers to find a 'buy button' in the brain, and control consumer behaviour (Senior & Lee, 2008). Remember, many thought the same about subliminal advertising in the past.

Despite the popular focus on using tools such as fMRI though, when conducting neuroscientific research regarding organizationally-relevant problems, consumers need not be placed in huge brain scanners (Lee & Chamberlain, 2007). Cognitive neuroscience brings a massive range of techniques to the organizational research table and they can all be of significant use. Yet, like the advertising example, neuroscientific techniques will not help organizations differentiate between individuals, or detect loyalty to an organisation. Instead,

it is very likely that taking a wider neuroscientific approach to researching business problems and decisions will allow a greater understanding of why *in general* we behave or react the way we do, and a correspondingly greater ability to predict this.

Take, for example, the ability to measure the effects of emotional arousal on decision-making, which can be carried out quite effortlessly (Groeppel-Klein, 2005; Lo & Repin, 2002). By combining this approach with functional brain scanning it is possible to understand which areas of the brain generated that specific emotional response – and whether distinct brain regions are involved in other types of decision making.

Consider also the vast industry that has grown up around leader development. Vast sums of money are spent by organizations on programmes designed to 'improve' the leadership capabilities of those in positions of responsibility (Kellerman, 2004). Yet we know next to nothing concrete about the ability of these programmes to actually deliver what they promise. In fact, is it even *possible* to train individuals to be more effective leaders, or is leadership innate to some and not others? Most managers would be able to name as many colleagues who agree with the former as with the latter, yet neither scientists nor managers have any real way of knowing which is the correct opinion with our current methods of investigation. If managers were to know whether leadership was fundamentally 'natural', would this knowledge change the amount of money organizations spent on leader development? Would it change the nature of leader development itself?

Answers to questions like this and countless others which vex managers are the promise of organizational cognitive neuroscience, which can be thought of as the consolidation of

recent moves towards a more biologically-informed view of business and organizations. Such a view holds that organizational performance is enhanced by helping business leaders understand the underlying biological and cognitive activities of their staff, customers, and other stakeholders, which in turn leads to superior business decisions.

Moving back to the earlier example of leader development, some organisations are already ahead of the curve. A recent development evident in Europe is to use neuroscientists in the design of Executive training programs (University of the Basque Country, Spain). Such organisations realise that effective teams require more than simply an understanding of contemporary business models, or assessments of individual strengths and weaknesses from self report questionnaires. Real changes in team behaviours require evidence-based interventions. Organizational research from a neuroscientific perspective can provide that evidence. Research is finding that there may well be an inheritable component to leadership effectiveness, and our own work in this area is beginning to uncover the relationship between managerial styles and specific genes that in turn cause differences in brain structure and function (Arvey et al, 2007). In other words what parts of leadership we may be 'born with' and what parts we are not. Given that certain types of leadership are defined by moral and ethical reasoning (e.g., Turner et al, 2002) which are in turn starting to be mapped to distinct cortical substrates (Greene & Haidt 2002; Moll et al, 2003) it is clear that a cognitive neuroscience of leadership is already coalescing.

It is a small step further to see how managers could use such knowledge to select ideal candidates for different types of leadership positions. As well as knowing what leader capabilities are more likely to respond to training, or whether there are 'compensation

mechanisms' available to those who do not possess the inherent advantages such as trainable decision strategies.

There is no doubt that that application of neuroscientific tools, and more importantly a neuroscientific way of thinking, to business problems *will* have a major impact on the way we do business in the near future. For example, human information processing and decision making capabilities are fundamentally based on evolved reward and survival mechanisms (Gottfried et al, 2003; Breiter & Rosen, 1999). By understanding the relationship of these brain areas with each other we can also understand more about the nature of different rewards and how they motivates workers. Our work has shown that when financially rewarded to do a task, areas of the cortex responsible for motivation activate and 'feed into' other areas responsible for successful completion of that task (Longe et al, 2008). Thus, managers could conceivably see whether or not certain rewards motivate team members efficiently. Take for example people who work in small family businesses where aspects such as reputation and pride may be more important to motivation than pay. By adopting a neuroscientific approach it is possible to design specific remuneration that is designed for the individual worker, which should maximise productivity as well as job satisfaction.

Organizational cognitive neuroscience, a way of thinking about business that models the interaction between our basic biological brain systems, our cognitive information processing systems, and our social psychological processes, is at the heart of this emerging understanding of business as a fundamentally biological process. As noted above, preliminary work is showing how evolutionary and biological mechanisms inform business

decisions and behaviours more than many would care to admit. Yet we are only right now scratching the surface of the vast insights which may be available.

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